

HEAT PUMP WITH SECONDARY LOOP AIR-CONDITIONING SYSTEM

ABSTRACT OF THE DISCLOSURE

5 A chiller-condenser is disposed downstream of a condenser and a chiller-evaporator is disposed downstream of the chiller-condenser. A main three-way valve is disposed between the compressor and the condenser for directing flow from the compressor to the condenser in the air-conditioning mode and for directing flow from the compressor through a by-pass line to the chiller-condenser in the heat pump mode.

10 A heat pump (HP) expansion device shown as an orifice tube expands the refrigerant in the heat pump mode and an by-pass valve is disposed between the chiller-condenser and the chiller-evaporator for directing flow from the chiller-condenser through the heat pump expansion device and to the chiller-evaporator in the heat pump mode. An air-conditioning (A/C) expansion device shown as orifice tube is

15 disposed downstream of the condenser and upstream of the by-pass line for expanding the refrigerant in the air-conditioning mode.